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VARIOUS.

ENAMEL FOR WATCH FACES, &c.

J. H. Robinson prepares these plates with a backing of sheet iron having raised edges to receive the enamel in powder, which is fused; after cooling, the lettering and figuring is printed on the plate with soft black enamel by transferring, the plate being then again placed in a muffle to fuse the enamel of the lettering or figuring. The enamel used is composed of white lead, arsenic, flint glass, saltpetre, borax, and ground flint, reduced to powder, fused and formed into cakes, and ground up for use.

Practical Magazine.

ETCHING OF IRON AND STEEL.

F. Kick recommends to etch iron and steel with the following mixture:

Hydrochloric acid	$^1/_2$-litre.
Water	$^1/_2$-litre.
Concentrated solution of antimonious chloride	1 drop.

The last ingredient is added to prevent rusting of the etched parts. Soft and fine grained metal is more equally acted on than other sorts. Dingler's Polytech. Journal, ccxii. 40.

Practical Magazine.

NEW PROCESS FOR COPPER ENGRAVING.

Bouquet de la Grye proposes to cover the copper-plate with a thin, strongly adherent coating of silver; the silvered plate is then varnished with a coloured resist, and the engraving traced with a dry point; the etching is then bitten in by perchloride of iron. In this way the aquafortis process is ameliorated, since the adehrence of the silver renders the graving as clean as the tracing itself; this would be a defect for portraits, but is essential for cards. Bulletin Soc. Chim. Paris, xxii. 330, from Comptes Rendus, xxviii. 1535.

Practical Magazine.

NEW EMERY STONES.

A new kind of polishing-stones is manfactured by Van Baerle and Co., of Worms (Germany), consisting of emery, soluble glass, and petroleum. The emery-stones in general use consist of gum, shellac, and emery. When stones of this description are turned rapidly, either dry or with oil, they get heated to such an extent that the gum or shellac lucomes soft, the stone turns greaty, and does not act any longer. The new stones are said to be free from these evils. Their speed may be increased from 1,000 to 2,000 revolutions per minute, according to the size of the stone. When the stones are used for polishing steel, the latter does not get heated to such an extent as with other stones, the steel does not become anneald, and preserves its hardness. The new stones are damped by means of a rag soaked in petroleum. They are made in three shades of finenessfine, medium, and coarse.

The Builder from Gewerbeblatt für Hessen.

WOODEN FLOORS ON ASPHALTE.

A novel method of laying down wooden floors was introduced in France about twenty years ago, and has since then obtained a wide application. It consists in putting down flooring not, as hitherto on sleepers, but in imbedding the boarding in asphalte. The new floors are used mostly for ground stories of barracks and hospitals, as well as for churches and courts of law. Mr. Schott in the *Deutsche Bauzeitung,* draws the attention of architects to this new mode of construction, very little known out of France, and urges that its wider application is desirable on account of its evident usefulness. For the floors in question, pieces of oak, usually 2$^1/_2$ in. to 4 in. broad, 12 in. to 30 in. long, and 1 in. thick, are pressed down into a layer of hot asphalte notquite $^1/_2$ in. thick in the well-known herring-bone pattern. To ensure a complete adhesion of the wood to the asphalte and obtain the smallest possible joints, the edges of the pieces of wood are planed down slanting towards the bottom, so that their cross section becomes wedgelike. Nails, of course, are not necessary, and a perfectly level surface may he given to the flooring by plaining after the laying down. The advantages of this flooring which only requires an even bed on which it rests, are said to be the following:

I. Damp from below and its consequence, rot, are prevented.

II. Floors may be cleaned quickly and with the least amount of water, ensuring rapid drying.

III. Vermin cannot accumulate in the joints.

IV. Unhealthly exhalations from the soil cannot penetrate into living-rooms. Asphalte being impermeable to damp, rooms become perfectly healthy even if they are not vaulted underneath. In buildings with several stories, as in hospitals, the vitiated air of the lower rooms cannot ascend, an object which it has hitherto not been possible to attain by any other means.

V. The layer of asphalte will also prevent the spreading of fire from one floor to another in case of conflagration. The flooring here described has been laid in the numerous casements of the newly constructed forts round Metz, to the satisfaction of the authorities. The cost is about 1s. per square foot. This estimate somewhat high would be much lower in districts where oak and labour are cheaper, and the distance from the places of construction less, and especially where there is more competition amongst contractors than at Metz; and the cost for larger undertakings may be reduced to 8 German mark (8 s. English) and under per square metre.

USEFUL CEMENTS.

1. *Waterproof Cement for Cast-Iron Pipes, &c.* Take equal weights, in dry powder, of burnt lime, Roman cement, pipeclay and loam, and knead the whole with ahout one-sixth of its weight of linseed oil. An increased proportion of Roman cement improves the quality.

2. *Cement which resists moisture and heat, but not the direct application of fire suitable for gas and steampipes &c.* Take 6 parts red lead, 2 parts white lead, and 4 parts pipeclay; fine and dry and mix into a stiff mass with boiled linseed oil.

3. *Rust Cement for Water and Steam-pipes, Steam Boilers &c.* Make a stiff paste by mixing 2 parts sal-ammoniac, 35 parts iron borings, 1 part sulphur, with water, and drive it into the joint with a chisel.

Or, take two parts sal-ammoniac, 1 part flowers of sulphur, 60 parts of iron chips, and mix with water containing a sixth part of vinegar or a little sulphuric acid.

Or, mix 100 parts bright iron filings, or fine chips or borings, with 1 part powdered sal-ammoniac, moistening whit urine. When prepared, force it into the joints. It will prove serviceable under the action of fire.

4. *Cement for the Joints of Iron Stoves.* Equal quantities mixed, siftet road ashes, and finely-powdered clay with a little salt. When required for use, add water enough to make a thick paste.

5. *Iron Cement, unaffected by a Red Heat.* Take 4 parts iron filings, 2 parts clay, 1 part firebrick; reduce to the size of rapeseed, and mix into a thick paste with a saturated solution of salt.

6. *Cement for fastening Wood to Stone.* Melt together: 4 parts pitch, 1 part wax, and add 4 parts pounded brick-dust or chalk. Must be warmed before use, and applied thinly to the surfaces to be joined.

The Practical Magazine from Ingenieurs Taschenbuch.

CEMENT FOR PETROLEUM CISTERNS.

A useful cement, which hardens very quickly, is formed of litharge mixed with glycerine. It may be used for water and steam-pipes, as well as for lining cisterns for petroleum oils.

Revue Indust.